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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/998,222	12/03/2001	Hugo Ignacio de Lasa	UW07	5074

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EXAMINER	
LISH, PETER J	

ART UNIT	PAPER NUMBER
1754	

DATE MAILED: 05/14/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

AS

Office Action Summary	Application No.	Applicant(s)	
	09/998,222	DE LASA ET AL.	
	Examiner	Art Unit	
	Peter J Lish	1754	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 February 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-4, 6, 8-16, 19-26, and 28* is/are rejected.

7)☒ Claim(s) *5,7,17,18 and 27* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

Applicant's arguments filed 2/3/04 with respect to the rejection over Viltard have been fully considered but they are not persuasive. Applicant argues that Viltard teaches broad ranges for the properties of the cataylst and gives no insight into the applicant's use of the catalyst. Regarding the broad ranges taught by Viltard, it is seen that these ranges incorporate the ranges taught by applicant. Regarding the lack of insight toward a methane reforming process, the application of a catalyst does not limit the catalyst itself.

Applicant's arguments filed 2/3/04 with respect to the rejection over van Looij have been fully considered but they are not persuasive. Applicant argues that the metal dispersion of van Looij is above 1 m^2 Ni per m^2 support, which does not meet the range limitation of the claims. This argument is based upon the applicant's calculation derived from a single example of the van Looij reference. First, it is seen that this single example is not representative of the entire teaching of van Looij. van Looij teaches a metal loading of greater than or equal to 10 %wt, thus nickel may be added in amounts smaller than that used in the example cited by applicants. Second, whereas applicants cite the weight percent of nickel in the cited example to be 122 %wt, it appears that the correct weight percentage is about 55% (1.22 g Ni / 2.22 g total).

Applicant's arguments with respect to the rejections over Kobylinski and Jarosch have been considered but are moot in view of the new ground(s) of rejection. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102/103

Claims 1, 2, and 8-10 are rejected under 35 U.S.C. 102(e) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Viltard et al. (US 6,238,549).

Viltard et al. disclose a nickel catalyst which may be supported on zeolites. Viltard et al. teach that the nickel makes up between 5-65 %wt of the catalyst and that the average nickel crystallite size in the catalyst is less than 100 Angstroms (column 9, lines 5-15). While it is not explicitly taught that the catalyst of Viltard et al. has a nickel dispersion of no more than 0.2 m^2 Ni per m^2 support, it is expected that this be the case given the equivalent weight percentage and crystallite size of the nickel.

Claims 1-4, 6, and 26 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over van Looij et al. (US 5,714,092).

van Looij et al disclose a process for the production of hydrogen by steam reforming methane. van Looij et al disclose a nickel catalyst comprising nickel particles on a support wherein 90% of the particles are smaller than 10 nm (100 Angstoms) (See col. 3, lines 27-33) and the catalyst is prepared a by the incipient wetness impregnation (See col. 6, lines 15-20). The nickel is loaded on the catalyst until a desired amount of above 10 weight percent is reached. van Looij et al discloses the use of alpha alumina as the preferred support.

While it is not explicitly taught that the catalyst of van Looij et al. has a nickel dispersion of no more than 0.2 m^2 Ni per m^2 support, it is expected that this be the case given the equivalent weight percentage and crystallite size of the nickel. Additionally, this is a result effective variable, as clearly acknowledged in the instant specification at page 11, lines 21-25. The

distribution is dependent on the number of times that the incipient wetness is performed. It would have been obvious to one having ordinary skill in the art at the time the invention was made to have performed the incipient wetness method various times until achieving the desired distribution of the nickel on the support since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

The limitation of the claim that reads "capable of withstanding at least 6 catalyst regenerations without significantly inhibiting it's catalytic activity in said reforming process" has been noted, since the claimed catalyst is prepared by the same process as the instantly claimed catalyst and contain the same components, this property will be inherently provided by the catalyst of van Looij et al.

Claim Rejections - 35 USC § 103

Claims 11-12 and 19-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Viltard et al. (US 6,238,549).

While Viltard et al. do not explicitly teach the use of sodium exchanged Y zeolite or ultrastabilized Y zeolite, it does teach the use of a high surface area zeolite, with a surface area in the range of 30-300 square meters per gram. It would have been obvious to one of ordinary skill at the time of invention to use either a sodium exchanged or and ultrastabilized Y zeolites because they are well-known high surface area zeolites. Furthermore, while Viltard et al. do not specifically teach the size of the catalyst particles, it would have been obvious to one of ordinary skill at the time of invention to produce catalysts with an average size of between 20-100

microns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art. In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

Claims 13-16, 23, 25, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Looij et al. (US 5,714,092 A).

In regards to claims 13-16, van Looij et al, fail to disclose the size and range of the support. However, it would have been obvious to one of ordinary skill in the art at the time the invention was made to have determined the optimum size of the support of van Looij et al catalyst, in the range from 5 and 200 microns or 20 and 100 microns, since it has been held that discovering an optimum value of a result effective variable involves only routine skill in the art, In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980).

In regards to claim 23, 25, and 28, van Looij et al discloses the reforming of hydrocarbons, however, it fails to disclose recycling said catalyst to and from said reaction zone, regenerating between 10 and 100% of the catalyst being recycled in a regeneration zone to provide a regenerated catalyst and returning said regenerated catalyst to said reaction zone. It would have been obvious to one of ordinary skill in the art at the time the invention was made since it was known in the art that to regenerate catalysts used in steam reforming process such as the one of van Looij et al.

Claims 1-2, 8-12, 19-22, and 23-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over van Looij et al. taken with Jarosch et al. ("Novel Riser Simulator for Methane Reforming").

Van Looij et al. is applied above. Jarosch et al. disclose a process for the steam reforming of methane. This process involves the use of a supported nickel catalyst, which is regenerated in the process. Nickel was impregnated on alpha-alumina, NaY zeolite, and USY zeolite supports.

It would have been obvious to one of ordinary skill at the time of invention to use the zeolite supports of Jarosch et al. in the catalyst production of van Looij et al., because they are taught to be equivalent to the preferred alpha-alumina for the support of methane reforming catalysts.

Allowable Subject Matter

Claims 5, 7, 17-18, and 27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J Lish whose telephone number is 571-272-1354. The examiner can normally be reached on 9:00-6:00 Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

PL

STUART L. HENDRICKSON
PRIMARY EXAMINER